

## **RICH MATH ACTIVITIES FOR A PRIMARY SCHOOL CLASS**

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### **Short description of the Workshop Groups: organizers, aims and underlying ideas**

Innovamat is a project that develops resources to teach and learn maths at school. In 2020/21 almost 700 Primary Schools are using our program, mostly in Spain but also in France, Chile or Ecuador.

According to NCTM Principles and Standards, we define 4 big maths processes: “Problem-Solving”, “Reasoning and Proof”, “Connections” and “Communication and Representation”. Our activities always seek that children develop content and skills related to these processes, and this is why our teacher’s guides focus on class conversation and materials manipulation. Furthermore, we are developing a self-adaptive app that allows every child to follow his or her own content-practice path. In addition to that, Innovamat is making big efforts to train Primary School teachers in teaching rich maths from a process point of view, and we organize training sessions all around the country. Last year, more than 10 000 teachers attended our virtual teacher training conferences.

Our didactic team is led by experts from Universitat Autònoma de Barcelona (UAB). We propose rich activities that are designed in order to encourage teaching and learning maths from a rich process point of view. The ideas beneath the project are based on research. Specifically, our main research sources are Morera’s doctoral thesis (directed by Fortuny, J. M., and Planas, N.), the research from the Freudenthal Institute for Science and Mathematics Education, the Catalan official curriculum, USA Common Core and Mogens Niss’ research. In addition to all that, PhD student Vilalta is working on a thesis to study how teachers take advantage of the learning opportunities proposed through the guides by the Innovamat project. Finally, our colleagues Rojas and Solar from Pontificia Universidad Católica de Chile (UC), are going to contribute to enrich the activities and the way we communicate them to teachers, mainly thanks to their research experience in continuing teacher training.

At this workshop, we are going to introduce, perform and analyse two examples of activities from our project. Therefore, this workshop might be especially interesting for Primary School teachers and any person who wants to know about rich activities and discuss them. The first activity is going to be a geometry activity based on a version of Tangram. The second one is going to be a numbering activity of productive thinking. We are going to explain each activity, ask attendants to take part in solving every challenge like if they were students, and concurrently we are going to discuss, as teachers, the maths didactics and learning opportunities beneath all of it. In addition to that, we are going to project and analyse some short videos from real Primary School children working on such activities. We want to focus on the learning opportunities provided by the activities and our classroom management and on how children take advantage of those opportunities (focusing on maths processes and contents).

Key questions:

- Do the proposed activities and class management provide rich learning opportunities from a maths

process point of view?

- How do children take advantage of these learning opportunities?
- How could we make the activities richer?
- How could we improve the transmission of these ideas to Primary School teachers?

**Planned structure:**

Planned timeline	Topic	Material / Working format / Responsible person
00 - 15 min	Definition of the framework: maths processes in the Innovamat project.	Computer and projector. / Exposition and group discussion. / Vilalta, A.
15 - 45 min	Activity 1: Geometry	Computer and projector, paper and three different coloured pencils. / Group discussion. / Vilalta, A. & Morera L.
45 - 75 min	Activity 2: Productive thinking	Computer and projector, paper. / Group discussion. / Rojas, F. & Solar H.
75 - 90 min	Conclusions	Computer and projector, paper. / Group discussion. / Vilalta, A.

**Venue requirement:**

None. We are going to perform the workshop virtually.

**References:**

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